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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRUONG, LECHI

ART UNIT	PAPER NUMBER
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2194

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,612

Applicant(s)

THOMAS

Examiner

LeChi Truong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9,11-13 and 15-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-9, 11-13, 15-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892). 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 2, 4-9, 11-13, 15-24 are presented for the examination. Claims 3, 10, 14 are cancelled.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4-5, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US. Patent 6,564,219 B1) in view of Amatsu et al (US. Patent 5,471,615).

4. As to claim 1, Lee teaches the invention substantially as claimed including: an interface (an application programming interface (API), col 3, ln 25-27), a storage object (a storage device, col 3, ln 27-29), an identifier for the storage object (col 7, ln 41-43), a map (mapping, col 3, ln 42-44), requesting a map for the storage object (col 3, ln 42-46/ col 9, ln 64-67/ col 10, ln 1-8), establishing a configuration identifier associated with the map (col 9, ln 50-55/ col 18, ln 4-10/ col 19, ln 25-30), using the identifier, the map, and the configuration identifier with one or more access to the storage object(col 4, ln 1-9/ col 18, ln 9-14/ col 18, ln 23-27), one or more extents(

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the mapping layer 320 may include a number of mapping layer such as file system 322 and LVM 424. The LVM represents a layer of mapping that is used in ultimately converting a logical object identifier into the physical block, col 9, ln 12-18), accessing a storage device from the second storage (col 1, ln 39-40/ the change API performs a mapping of the logical blocks of the specified logical object to the set of physical blocks in the storage device wherein the logical object is stored, col 18, ln 58-61), acquiring (organized, col 7, ln 41-45),

Lee does not explicitly teach the term a storage object housed in first storage environment, the second storage environment. However, Amatsu teaches the storage object housed in a first storage environment (MVS has a horizontal file system whereas UNIX file has tree-like system, col 2, ln 30-37).

10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Lee and Amatsu because Amatsu's storage object housed in a first storage environment, the second storage environment would increase the efficiency of Amatsu's system by allowing files must be accessible to both operating systems.

8. **As to claim 2**, Lee teaches the map represents a logical representation of the storage object (col 9, ln 8-12).

5. **As to claim 4**, Lee teaches the configuration identifier, the map is modified (col 10, ln 1-9), a subsequent configuration identifier is established for the modified map (col 18, ln 23-26).

6. **As to claim 5**, Lee teaches the configuration identifier, the map is altered (col 10, ln 1-9), a subsequent configuration identifier is established for the modified map (col 18, ln 23-26).

16. **As to claim 8**, it is an apparatus claim of claim 8; therefore, it is rejected for the same reason as claim 1 above. In addition, Lee teaches application programming interface

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(API)(API, col 3, ln 25-28), a persistent data structure (physical blocks col 8, ln 22-27/ data structures, col 9, ln 8-12), generate a persistent data structure of a stored object (col 3, ln 41-47 / col 8, ln 65-67 and col 9, ln 64-68/ col 15, ln 60-64), an assign configuration identifier (change API, col 18, ln 23-25/ the record identification routine, col 25, ln 4-5/ ln 32-35), an assign configuration identifier module operable to associate with the persistent data structure (col 17, ln 64-67 to col 18, ln 1-6 and ln 11-14), mapping module (the mapping API , col 12, ln 30-32), notify a client module when the persistent data structure is modified(col 18, ln 23-30/ ln 50-59), a retrieve extent module operable to provide one or more extents(the mapping layer 320 may include a number of mapping layer such as file system 322 and LVM 424. The LVM represents a layer of mapping that is used in ultimately converting a logical object identifier into the physical block, col 9, ln 12-18), accessing a storage device from the second storage (col 1, ln 39-40/ the change API performs a mapping of the logical blocks of the specified logical object to the set of physical blocks in the storage device wherein the logical object is stored, col 18, ln 58-61), an alternate map module (the reorganization routine, col 20, ln 58-62/ col 21, ln 20-22), an alternate map module activated to generate one of more alternate persistent data structure for the storage object(col 21, ln 20-24), the storage object is replicated within the first storage environment(col 21, ln 17-21).

12. Claims 6, 7, 9, 11-13, 15-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US. Patent 6,564,219 B1) in view of Amatsu (US. Patent 5,471,615), as applied to claim 1 above, and further in view of Field et al (US. Patent 6,253,324 B1).

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13. As to claim 6, Lee and Amatsu do not explicit teach a dynamic linked library. However, Field teaches a dynamic linked library (DLL, col 5, ln 35-36).

14. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to combine the teaching Lee, Amatsu and Field because Field's DLL would improve the efficiency of Lee and Amatsu's systems by allowing a plurality of interfaces and associated methods that can be called to exploit the full functionality of the storage server.

15. As to claim 7, Field teaches shared library (col 5, ln 37-38), an establish map module, the first storage environment, library (createFileMapping () API call, col 8, ln 8-10/ an operating system 35, col 4, ln 1 and col 5, ln 10-12/ dynamically linked library (DLL), col 5, ln 35-37).

19. As to claim 9, Field teaches an obtain storage object identifier module operable to associate a unique identifier handle with the storage object (col 8, ln 55-60).

21. As to claim 11, Lee teaches a defined number of the extents (col 18, ln 24-26).

22. As to claims 12 and 13, they are apparatus claims of claims 6 and 7; therefore, they are rejected for the same reasons as claims 6 and 7 above.

23. As to claim 15, it is an apparatus claim of claim 8; therefore, it is rejected for the same reason as claim 8 above.

24. As to claim 16, Lee teaches storage map module (the mapping API, col 12, ln 30-32), an assign configuration identifier module (change API, col 18, ln 23-25/ the record identification routine, col 25, ln 4-5/ ln 32-35).

25. As to claim 17, Lee teaches alternative map module (the reorganization routine, col 20, ln 58-62/ col 21, ln 20-22).

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26. As to claim 18, Field teaches the client module execute in a second storage environment (col 5, ln 46-50).

27. As to claim 19, Field teaches the API library (API call (), col 6, ln 40-41), the first operating system (operating system 35 of the storage system, col 4, ln 1-2/ col 10-15/ Fig. 2), the second operating system (the application referred to as client programs executing under an Window operating system, col 5, ln 46-51).

28. As to claims 20 and 21, they are apparatus claims of claims 6 and 7; therefore, they are rejected for the same reasons as claims 6 and 7 above.

29. As to claim 22, it is an apparatus claim of claim 1; therefore, it is rejected for the same reason as claim 1 above. In additional, Field teaches library (API call (), col 6, ln 40-41).

32. As to claim 23, Field teaches interface a first file system associated with the storage object in the first environment to a second file system associated with the client module in the second storage environment (col 5, ln 38-44).

37. As to claim 24, Field teaches first storage environment resides within a first operating system (col 5, ln 10-12, operating system, Fig 1), the second storage environment resides in a second operating system (col 5, ln 46-51).

Response to the argument:

29. Applicant amendment filed on 9/03/04 has been considered but they are not persuasive:

Applicant argued in substance that :

(1) Applicant can find no teaching or suggestion in Lee or Amutsu, taken singly or in combination, of “ accessing a storage device from second storage environment”.

(2) “ one or more extends of storage object ”.

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(3) “ a first storage enviroment to acess a storage device from a second storage enviroment”

30. Examiner respectfully disagreed with Applicant's remarks:

As to the point (1), Lee teaches the change API performs a mapping of the logical blocks of the specified logical object to the set of physical blocks in the storage device wherein the logical object is stored, col 18, ln 58-61).

As to the point (2), Lee teaches the mapping layer 320 may include a number of mapping layer such as file system 322 and LVM 424. The LVM represents a layer of mapping that is used in ultimately converting a logical object identifier into the physical bock (col 9, ln 12-18).

As to the point (3), Amatsu teaches MVS has a horizontal file system whereas UNIX file has tree-like system (col 2, ln 30 –37)/ the system has means for creating a dummy file in the file system of one operating system which is used as a place holder for a corresponding file in a storage device attached to the other operating system (abstract, ln 13-19).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LeChi Truong whose telephone number is (571) 272 3767. The examiner can normally be reached on 8 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIP. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIP system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

LeChi Truong

June 7, 2005



SUE LAO
PRIMARY EXAMINER